

HSEQ Work Instruction

Hot Work Permitting

| 08-HSEQ-I-G | |
|-------------------------|------------------------|
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| Department(s): | All |
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Purpose

The purpose of this Work Instruction is to provide a standard that will eliminate/mitigate the risk from fire causing injury to personnel and damage to property and the environment from work that produces heat or sparks i.e. welding, cutting, grinding.

Area

This Work Instruction applies to all employees and contractors over all operational areas on Boron Operations.

Responsibilities

Department Managers

- Shall ensure all personnel in their department understand the requirements of this Work Instruction and the Hot Work process for their area of responsibility.

Supervisors

- Shall ensure all personnel in their responsibility are trained and understand this Work Instruction and to review the system to ensure the process is fit for purpose and authorize Hot Work in hazardous areas when required.
- Shall review the completed Permits for compliance of the requirements of this Work Instruction and keep them on file for one year.

Employees and Contractors

- Shall notify their Supervisors of any Hot Work tasks they undertake prior to commencement and ensure they understand this Work Instruction and the Hot Work process.

Permit Issuer

- Shall open and close the Permit, ensure the Supervisor is informed of the Hot Work.

Safety and Environment

Hot Work Permits shall be issued by an authorized Hot Work Permit issuer when Hot Work is required outside a designated Hot Work area and all precautions and controls shall be in place. A Level 2 Risk Assessment shall be completed where the task is identified as high risk and a Take 5 shall be completed prior to any task undertaken.

Definitions

Designated Hot Work Area: A clearly sign posted area where no combustible or flammable materials make up any of the infrastructure or contents (See Table 1).

Combustibles: For the purpose of this Work Instruction are any solid, liquid, or gas that is flammable.

Hazards: For the purpose of this Work Instruction any solid, liquid, or gas that has the potential to ignite.

Hot Work: Any process that has the potential to create fire i.e. Arc and Gas Welding or Cutting, Grinding or Disc Cutting.

Hot Work Permit: A risk management tool

Shall: Is to be understood as mandatory

Should: Is to be understood as recommended.

Details

General

It is a requirement by Rio Tinto Global Risk Financing and Rio Tinto Management System that there is a process in place to manage the risks associated with Hot Work.

Designated Hot Work Areas

Designated Hot Work Areas shall be clearly sign posted.

Hot Work Permit (See Appendix A)

The purpose of a Hot Work Permit is:

- To prevent fires
- To prevent injury to personnel and damage to equipment
- To ensure a standard process is in place

Hot Work Permits shall be issued by an authorized Hot Work Permit Issuer prior to the commencement of any Hot Work when the Hot Work is to be executed outside a Designated Hot Work Area. (See Table 1)

The Hot Work Permit Issuer shall

- Be trained and deemed competent i.e. 1st or 2nd Class Millwright, Electrician or Mechanic.
- Inspect the work area to identify any combustibles and hazards relating to the Hot Work task and decide on precautions, checks, and controls to eliminate/mitigate the hazards.
- Fill out the required sections on the Permit and sign on as the Issuer.
- Inform the Supervisor of the Hot Work task.
- Ensure the Permit is available at the site of the Hot Work task.
- Ensure that post Hot Work inspections are completed.
- Return the completed Hot Work Permit to their Supervisor.

Persons working under a Hot Work Permit shall

- Be trained and competent OR be a qualified Trades person to perform the task i.e. 1st or 2nd Class Millwright or Mechanic or a Crafts Helper under the supervision of a 1st or 2nd Class Millwright, Electrician, or Mechanic.
- Be trained and competent with the use of fire extinguishers and relevant gas monitoring devices.
- Follow all precautions and controls as noted on the Hot Work Permit.
- Ensure the Permit is available at the site of the Hot Work task.
- Ensure the correct Personal Protective Equipment (PPE) is used and in safe working order.

Fire Watch shall

- Sign onto the Hot Work Permit
- Be trained and competent with the use of fire extinguishers and relevant gas monitoring devices.
- Have access to emergency communications and understand emergency procedures.
- Be able to clearly communicate with those performing the Hot Work.
- Have an unobstructed, clear, and uninterrupted view of the work site and surrounding area.
- Not leave the area until post Hot Work inspections are completed; post Hot Work inspections should be completed no less than 30 minutes after the completion of the task.
- Sign off on the Permit and return to the Permit Issuer.

Designated Hot Work Areas

| Mine | Truck Shop | Primary Process | BAP | Shipping | Facilities |
|--|------------------------|-----------------------------------|------------------|------------------------------|----------------------------------|
| Field Welding on GET (Ground Engaging Tools) | Main Truck Shop | Plant 1 Maintenance Shop | Maintenance Shop | Packer Maintenance Shop | Training Building Shop |
| | Middle Bays Truck Shop | Granulating East Maintenance Shop | Fabrication Shop | Fusing Maintenance Shop | Main Shop |
| | Gas Shop | Granulating West Maintenance Shop | | Fusing IE shop | Cogen Maintenance Shop |
| | | | | Shipping IE Shop | Steam Plant Maintenance Shop |
| | | | | Plant 9 Maintenance Shop | Tin Shop |
| | | | | BA Shipping Maintenance Shop | Minor Mod South Maintenance Shop |
| | | | | | Minor Mod North |

| | | | | | |
|--|--|--|--|--|------------------|
| | | | | | Maintenance Shop |
| | | | | | Pilot Plant Shop |
| | | | | | Main IE Shop |
| | | | | | Valve Shop |

Appendices

Appendix 1

10-HSEQ-FM-BOR

Hard copy control:

Permit will be posted at work site until burning or welding work is complete or a new permit is issued. This permit can only be issued for **one** shift. If the permit needs to be extended, the Issuer can extend the permit after reviewing the requirements. This permit must be reissued if a change in conditions or work scope has occurred.

| | | | | | |
|--|--|---------------------------------------|-----|--------------------------|-----|
| Issuer | | Date & Time Issued: | | | AM |
| | | | | | PM |
| Work Performed By: | | Date & Time of Expiration: | | | AM |
| | | | | | PM |
| Fire Watch By: | | Work Area / Location: | | | |
| Work Description: | | | | | |
| Circle Type: Welding/Braising Cutting Heating Grinding Other (Specify) | | | | | |
| Contact Name: | | Company: | | Phone: | |
| REQUIREMENTS | | | | | |
| TAKE 5 completed for this task | | <input type="checkbox"/> | Yes | | |
| Reviewed PPE Requirements | | <input type="checkbox"/> | Yes | | |
| Reviewed Emergency Reporting Procedure (Phone / Radio, Fire Alarm Location) | | <input type="checkbox"/> | Yes | | |
| Flagged and Tagged area (Same Level and Below) | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Can work be moved to a safe place rather than working in a hazardous location? | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Drained equipment | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Cleaned equipment of residue | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Filled equipment with water or inert gas | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Shutdown ducts or conveyors that may convey sparks to distant combustibles | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Ventilation adequate | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Monitored LEL (Lower Explosive Limit) (<10%) | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Issued Confined Space Permit | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Flammables, Combustibles, or Hazardous Material Protected / Removed by 35 Feet | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Verified hot work cannot conduct heat by radiation or conduction to unobserved combustibles | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Verified there are no openings, cracks, or holes where sparks may drop to combustible materials | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Does building have an automatic fire alarm system? | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Vessel or pipeline purged of any hazardous contents? List materials on back | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Reviewed precautions if welding on floors, walls, partitions, ceilings or roofs of combustible construction. | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Provided adequate shielding around work | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Fire Watch in place and understands requirements | | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |

| | | | | |
|--|-------------------------------|-----------------------|--------------------------|-----|
| Fire Extinguisher available | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| Water Hose available | <input type="checkbox"/> | Yes | <input type="checkbox"/> | N/A |
| PERMIT MUST BE AVAILABLE ON JOB SITE Return Permit to Supervisor upon completion or expiration | | | | |
| SPECIAL PRECAUTIONS or REQUIRED EQUIPMENT | | | | |
| | | | | |
| APPROVAL | Signature | | | |
| <i>Issuer</i> | | | | |
| <i>Signature: I certify that I maintained a 30 minute fire watch</i> | <i>(Fire Watch Signature)</i> | <i>Time Left Area</i> | AM | |
| | | | PM | |
| Extension Period | Reason for Extension | | Issuer Signature | |
| | | | | |

Revision History

| Revision | Document Title | Drafted By | Approved By: |
|----------|----------------|------------|--------------|
| 1.0 | Drafted | R. Ispisua | F. Dallaire |